

Appl. No. 09/868,289
Amdt. dated January 14, 2005
Reply to Office Action of September 17, 2004

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested.

Claims 20-26, 28, 30-41, and 43-50 are pending in the application with claims 1-19, 27, 29, and 42 having been canceled, claims 20 and 33 having been amended, and new claim 50 added.

Claims 33-49 have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

According to the Examiner, "It is unclear what limitation is intended to be conveyed by the language, 'without the application of external heat', because the claim has previously set forth that all foregoing steps are carried out at room temperature."

Claims 33-49 have also been rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. According to the Examiner: "The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The examiner has reviewed the specification and has not found support for the language, 'without the application of external heat'."

The phrase "without the application of external heat" no longer appears in the pending claims.

Appl. No. 09/868,289
Amdt. dated January 14, 2005
Reply to Office Action of September 17, 2004

Accordingly, it is requested that the rejections of claims 33-49 under 35 U.S.C. 112, first and second paragraphs, be withdrawn.

Claims 20-23, 27, 29, 33-36, 39, 41-43, 45, and 49 have been rejected under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 6-16767.

According to the Examiner: "The reference discloses a polyurethane composition comprising the reaction of a prepolymer, derived from toluene diisocyanate and polytetramethylene glycol, with DETDA, in the presence of phthalate or phosphate plasticizers, such as dioctyl phthalate, octyldiphenyl phosphate, and triphenyl phosphate. The reference further discloses that the reaction proceeds at temperatures as low as 30°C. See pages 1-5 and 7 of the translation."

It is noted that the phthalate and phosphite plasticizer aspect of this rejection has not been applied to claims 33-36, 39, 41, 43, and 49.

As amended, claims 20-26, 28, and 30-32 do not read on dioctyl phthalate, octyldiphenyl phosphate, or triphenyl phosphate. In particular, with regard to the use of an alkyldiphenyl phosphate, these claims are directed only to isodecyl diphenyl phosphate, the Applicants' most preferred plasticizer, see page 12, line 13.

The Examiner has stated that "... it would have been obvious to substitute one isomeric diphenyl phosphate plasticizer for another, given that one would have expected the isomeric plasticizers to function as equivalents." Presumably, the Examiner meant to say alkyl diphenyl phosphate plasticizer. Applicants, however, respectfully disagree with the

Examiner. It is Applicants' position that plasticizers containing branched chain groups confer unexpected and superior properties to the compositions of the invention compared to plasticizers containing straight chain alkyl groups. This selection is intimately connected with the claim limitation that the plasticizer must have a vapor pressure of less than 100 mPa at 25°C. Compounds containing long-chain branched alkyl groups have a vapor pressure lower than compounds containing corresponding straight-chain alkyl groups. The prior art does not disclose or suggest the importance of vapor pressure in the selection of a phosphate plasticizer, nor the value of selecting phosphates containing branched-chain alkyl groups rather than straight-chain alkyl groups. Further, and more particularly, the reference makes no mention of the use of *isodecyl*diphenyl phosphate and, in fact, leads away from its use by the teaching on page 5 that particularly preferred are esters substituted by an alkyl group *having no more than eight carbon atoms*.

With regard to the Examiner's observation that the reference discloses that the reaction proceeds at temperatures as low as 30°C, it is submitted that those skilled in the art understand "room temperature" to mean a temperature range of from about 20 to about 25°C. This point is now moot, however, in view of the amended process claims being directed to steps that are all carried out at *ambient conditions*. Support for this amendment appears in the application on page 15, at lines 4-5. Those skilled in the art will recognize that ambient conditions are environmental conditions, *such as temperature and pressure*, that are normal for a given location. Thus, even if one were to consider 30°C as possibly being ambient on a

Appl. No. 09/868,289
Amdt. dated January 14, 2005
Reply to Office Action of September 17, 2004

hot day, a *pressure* of 100-190 Kg/cm² G (page 7, paragraph 0020, of the reference) in any climate would not be.

Accordingly, it is requested that the rejection of claims 20-23,27, 29,33-36,39, 41-43,45, and 49 under 35 U.S.C. 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 6-16767, be withdrawn.

Claims 20-32, 37, 38, 40, 44, and 46-48 have been rejected under 35 U.S.C. 103(a) as being unpatentable over JP 6-16717 in view of Singh et al. ('371) and further in view of Rizk et al. ('860), Peter ('258), and Gabbard et al. ('956).

Singh et al. discloses a low-free toluene diisocyanate prepolymer formed by reaction of a blend of the dimer of 2,4-toluene diisocyanate and an organic diisocyanate, preferably isomers of toluene diisocyanate, with high molecular weight polyols and optional low molecular weight polyols. The prepolymer can be further reacted with conventional organic diamines or organic polyol curatives to form elastomeric polyurethane/ureas or polyurethanes.

Rizk et al. discloses a polyisocyanate prepolymer composition comprised of the reaction product of (a) a polyisocyanate having an average functionality of at least 2 and containing at least about 20 percent by weight of a diisocyanate monomer, (b) a monohydric alcohol and (c) a polyol having an average hydroxyl functionality of at least about 1.8 to at most about 3.2 wherein the prepolymer composition has (i) an amount of isocyanate groups by weight sufficient to react with water in the absence of a supplemental blowing agent to make a foam, (ii) at most about 10.0 percent by weight of the diisocyanate monomer and (iii) an amount of the polyisocyanate that is capped by the monohydric alcohol sufficient to

prevent gelling of the prepolymer composition. The prepolymer composition may be reacted with water to form a polyurethane foam.

Peter discloses a polyurethane elastomer possessing high resilience and high clarity obtained by subjecting to polyurethane elastomer-forming conditions a polyurethane elastomer-forming reaction mixture comprising: a) an isocyanate selected from the group consisting of diphenyl methane diisocyanate, isocyanate obtained from the reaction of polyol with MDI and mixtures thereof; b) at least one polyol; and, c) at least one diol chain extender of the general formula: $\text{HO}-(\text{CH}_2)_x-\text{OH}$ wherein x is an integer from 5 to about 16.

Gabbard et al. discloses a flexible plasticized polyurethane foam in which water is used as the foaming agent and a plasticizer selected from phthalate, phosphate ester and benzoate plasticizers is added to improve the softness and flexibility of the polyurethane.

It is submitted that none of the secondary references, either alone or in combination, supplement the deficiencies of the primary reference discussed above to render the present invention unpatentable.

The Examiner has taken the position that "it would have been obvious to incorporate the curing agent and plasticizers of the secondary references within the compositions of the primary reference, because it has been held that it is prima facie obvious to utilize a known component for its known function." This is impermissible hindsight. Applicants' invention provides compositions that are moldable and curable *under ambient conditions* by the nonobvious selection of a specific combination of ingredients, and in particular, the selection of a particular class of plasticizers. The disclosures in JP 6-16767 and the secondary

Appl. No. 09/868,289
Amdt. dated January 14, 2005
Reply to Office Action of September 17, 2004

references are very general, and the function of the plasticizers is these references appears to be entirely conventional. No specific properties are sought from the plasticizers used in these references, nor is there any indication that any particular plasticizer or group of plasticizers would have any particularly useful properties (such as minimizing distortion). Moreover, there is nothing in either the primary or secondary references to suggest a combination of components that would result in a composition capable of being cast and cured under ambient conditions. Any of a vast range of curing agents and plasticizers available in the prior art *could be* incorporated into the composition of JP 6-16767, but there is no indication anywhere in the prior art as to *which* curing agents and plasticizers, or indeed whether *any* particular combination of curing agent and plasticizer would result in the highly desirable properties of castability and curability under ambient conditions, as well as distortion control.

Accordingly, it is requested that the rejection of claims 20-32, 37, 38, 40, 44, and 46-48 under 35 U.S.C. 103(a) as being unpatentable over JP 6-16717 in view of Singh et al. and further in view of Rizk et al., Peter, and Gabbard et al. be withdrawn.

Appl. No. 09/868,289
Amdt. dated January 14, 2005
Reply to Office Action of September 17, 2004

In view of the foregoing, it is submitted that this application is now in condition for allowance and an early Office Action to that end is earnestly solicited.

Respectfully submitted,

14 JAN 05
Date

Paul J. Lewis Reg. No. 30,754
for James L. Lewis
Reg. No. 24,732

Levy & Grandinetti
Suite 408
1725 K Street, N.W.
Washington, D.C. 20006-1419

(202) 429-4560